United States Environmental Protection Agency
Region II

Date:

Subject: Removal Site Evaluation (Phase 1) for the Cornell-Dubilier Electronics Site, South Plainfield, Middlesex County, New Jersey

From: Nick Magriples, On-Scene Coordinator
Removal Assessment and Enforcement Section

To: File

The U.S. Environmental Protection Agency (EPA) Removal Action Branch (RAB) received a request from the New Jersey Remediation Branch on August 20, 2007 to evaluate a portion of the Cornell-Dubilier Electronics Site (Site) for a CERCLA removal action. The request was focused on the Bound Brook and the recent findings of additional capacitors in the stream corridor.

The Site is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey. It occupies approximately 26 acres in an industrial/commercial/residential area and is bordered by commercial businesses and residences to the south, west, and northwest. Wetlands and an unnamed tributary to the Bound Brook border the Site to the southeast and east. Conrail railroad tracks pass alongside the eastern edge of the Site and crisscross the unnamed tributary just north of the Site. Other industries and commercial businesses are present to the northeast and east of the Site on the opposite side of the Conrail tracks. An estimated 540 persons reside within 0.25 miles of the Site, with the nearest residential homes being located on Spicer Avenue and on the opposite side of Hamilton Boulevard, less than 200 feet from the Site. The total population estimated to live within one mile of the Site is 8,700 persons.

The Bound Brook is a low-gradient stream that has been documented through fishery surveys to contain spottail shiner, silvery minnow, white sucker, tessellated darter, American eel, largemouth bass, redfin pickerel, rock bass, catfish, carp, and sunfish. Mammalian species reportedly observed in the Bound Brook corridor include red fox, domestic dog, muskrat, groundhog, white-tail deer, eastern gray squirrel, eastern cottontail, white-footed mice, eastern chipmunk, rat, raccoon, and opossum. Although not documented to be present near the Site, piscivorous mammals such as mink and river otter may occur within the Bound Brook corridor. Avian species reportedly identified within the Bound Brook corridor include red-tailed hawk, belted kingfisher, great blue heron, green heron, Canada goose, song sparrow, American goldfinch, domestic pigeon, barn swallow, hairy woodpecker, yellow warbler, common yellowthroat, northern oriole, killdeer, house wren, American robin, and great-crested flycatcher.

The unnamed tributary flows into the Bound Brook approximately 0.75 miles downstream of the Site. The Bound Brook flows for 1.5 miles before emptying into New Market Pond. Surface water flow from New Market Pond travels approximately 8.5 miles before discharging into the Raritan River. The dam on the western edge of New Market Pond is reportedly impassible to most fish. Spring Lake is located upstream from the Site and is associated with Cedar Brook. Both of these water bodies support secondary contact recreation including boating and fishing. All of the above-mentioned water bodies are designated by the State of New Jersey for the maintenance, migration, and propagation of the natural and established biota. These water bodies are utilized as freshwater fisheries. A fish consumption advisory has been posted for the Bound Brook and its tributaries, including nearby New Market Pond and Spring Lake. Wetlands that border the Site to the southeast diminish significantly as the Bound Brook heads downstream towards the northwest. The width of the stream in the vicinity of the Site varies from 10 to 20 feet, with a varying depth during normal conditions, of one to four feet. Ground water is a significant source of drinking water within a four-mile radius of the Site. The majority of people within this radius are served by drinking water from either the Middlesex Water Company (MWC) or the Elizabethtown Water Company (EWC), both of which utilize supply wells within four miles of the Site.

Cornell-Dubilier Electronics (CDE) operated at the Site from 1936 to 1962, manufacturing electronic components including, in particular, capacitors. PCBs and chlorinated organic solvents were used in the manufacturing process, and it has been alleged that during CDE's period of operation, the company disposed of PCB-contaminated materials and other hazardous substances at the Site. These activities evidently led to widespread chemical contamination at the facility, as well as migration of contaminants to areas nearby. After CDE's departure from the Site in 1962, the facility was operated as a rental property, with over 100 commercial and industrial companies operating at the facility as tenants.

In 1996, the New Jersey Department of Environmental Protection (NJDEP) conducted a Site Inspection and collected surface soil, surface water, and sediment samples at the facility property. In June 1996, at the request of NJDEP, EPA collected and analyzed additional soil, surface water and sediments at the facility. The results of the sample analyses revealed that elevated levels of PCBs, VOCs, and inorganics were present at the Site.

As a result of the contamination found at the facility, in March 1997, EPA ordered the owner of the facility property, D.S.C. of Newark Enterprises, Inc., a potentially responsible party (PRP), to perform a removal action to mitigate risks associated with contaminated soil and surface water runoff from the facility. The removal action included paving driveways and parking areas in the industrial park, installing a security fence, and implementing drainage controls.

In August through December 1997, RAB collected surface and subsurface soil samples from the banks and sediment samples from the streambed of the Bound Brook. Nine sections (Reaches 1 through 9), spanning approximately 2.4 miles of the Bound Brook, were investigated. Soil samples were collected from both sides of the stream, five feet and ten feet away from the edge

of the stream, from two depth intervals, 0 to 6 inches and 18 to 24 inches. Sediment samples were collected from the creek at similar depths. These samples were collected in transects every 50 feet in Reaches 1 through 4, every 100 to 200 feet in Reach 5, every 200 feet in Reaches 6 through 8, and every 50 feet in Reach 9. Table 1 presents the maximum total PCB concentrations detected for the samples collected from each Reach on both sides of the Bound Brook and from its sediments.

Table 1: Maximum PCB Concentrations (mg/kg) Detected in Samples Collected From the Bound Brook, EPA, 1997

	North Bank	South Bank	Sediment
Reach 1	6.7	85	0.32
Reach 2	8.1	27	22
Reach 3	39	830	21
Reach 4	4.6	250	1.6
Reach 5	180	110	39
Reach 6	470	220	13.6
Reach 7	28	24	25
Reach 8	15	7.1	22
Reach 9	0.2	0.17	0.12

In 1997 the EPA Environmental Response Team (ERT) performed an ecological evaluation of the Bound Brook. These investigations identified elevated levels of PCBs in fish and sediments of the Bound Brook. Maximum PCB concentrations (Aroclor-1254) identified in crayfish, forage fish, and edible fish was 2.4 mg/kg, 20 mg/kg, and 42 mg/kg, respectively. As a result of these investigations, NJDEP issued a fish consumption advisory for the Bound Brook and its tributaries, including nearby New Market Pond and Spring Lake.

Also in 1997, EPA began collecting surface soil and interior dust samples from residential and commercial properties near the CDE facility. The results of the sampling revealed PCBs in soil and interior dust that posed a potential health concern for residents of several of the properties tested. These investigations led to cleanups at 19 residential properties, conducted from 1998 to 2000. In July 1998, EPA included the Site on the National Priorities List.

In June 1999, soil sampling activities were performed by RAB to characterize PCB contamination in the floodplain of the Bound Brook in Reaches 5 and 6, which had the highest mean surface soil PCB concentrations of the areas investigated in 1997. The areas chosen for this investigation were selected based on their proximity to high use areas. The highest concentration of PCBs (Aroclor-1254) detected was 25 mg/kg.

In 2000, EPA initiated the Remedial Investigation (RI) for the Site and began collecting soil samples from properties further from the CDE facility. This sampling revealed additional properties with PCBs in soil at unacceptable levels, and indicated a need for more extensive

sampling. EPA compiled the 1997 and 1998 removal sampling data with its remedial investigation data in a Remedial Investigation Report for Operable Unit 1. In September 2003, EPA selected a remedy to address the contaminated soil at properties in the vicinity of the former CDE facility. The remedy included indoor dust remediation where PCB-contaminated dust was encountered

More recently, all buildings have been vacated of tenants and demolished as part of an EPA Remedial Action (Operable Unit 2). This action, which was completed in May 2008, resulted in the removal of approximately 26,400 tons of contaminated building debris. The area formerly covered by the buildings has been paved temporarily. Excavation and backfilling of the former capacitor disposal area was completed in June 2008. Approximately 21,000 tons of capacitor debris and soil were removed as part of the Remedial Action. All of the waste was shipped offsite for disposal.

Since 2007 periodic inspections have been conducted along the Bound Brook near the Site. Capacitor and capacitor parts discovered during these inspections have been collected and secured in drums at the Site for future disposal. These capacitors, most of which are relatively small in size, have extremely elevated levels of PCBs within them.

In December 2007 through January 2008, RAB recreated a portion of the sampling event that took place in the Bound Brook corridor in 1997. During this effort, only Reaches 1 through 4 were sampled; an area that spans from approximately the upstream wetland bound by Spicer Avenue through to Lakeview Avenue. The analytical results indicate that Reaches 2 and 3 contained the most elevated PCB levels in the vicinity of the Site. Reach 1, which is mostly upstream of the Site, contained the lowest levels of PCBs. Reach 4 contained elevated levels of PCBs, albeit at generally lower levels relative to Reaches 2 and 3.

Reach 2 spans the area between the twin culverts at the southeast corner of the Site to the first culvert under the Conrail tracks. Reach 3 covers the next downstream area up to the second culvert under the Conrail tracks. The maximum PCB concentrations, identified as Aroclor-1254, detected in Reach 2 were 180 mg/kg on both the north and south banks, and 190 mg/kg in the sediments. The areas of highest concentrations in Reach 2 were just downstream of the twin culverts and in the vicinity of a former discharge pipe from the Site. The maximum PCB concentrations, identified as Aroclor-1254, detected in Reach 3 were 650 mg/kg in the north bank, 500 mg/kg in the south bank, and 62 mg/kg in the sediment. Most of the transects in Reach 3 contained points with PCB detections above 100 mg/kg.

All of the materials listed above are CERCLA designated hazardous substances as defined in 40 CFR Table 302.4. The Site is defined as a facility under section 101(9) of CERCLA, 42 U.S.C. § 9601(9). The hazardous substances at the Site constitute a "release," as defined in Section 101(22) of CERCLA, 42 U.S.C. Section § 9601(22).

Conditions at the Site meet the requirements of Section 300.415(b) of the National Contingency Plan (NCP) for the undertaking of a CERCLA removal action. Factors from the NCP Section 300.415(b)(2) that support conducting a removal action at the site are discussed below.

There is a potential exposure to a hazardous substance by nearby human populations **(§300.415(b)(2)(i))**. CERCLA hazardous substances have been identified in the soils and sediments in the Bound Brook corridor near the Site. There is evidence that persons are accessing this area near the Site. While someone entering the area could potentially be exposed to elevated levels of PCBs and other CERCLA hazardous substances associated with the Site, the frequency and duration of this exposure is not known. Potential exposure pathways include incidental soil ingestion, dust inhalation, and dermal contact.

Based on the results of the ecological evaluation conducted in 1998, PCBs have been detected in the fish along the Bound Brook corridor from the Site downstream to New Market Pond. Although a fish consumption advisory has been issued and warning signs are posted along the Bound Brook, it is reported that persons in the area continue to fish the area for consumption purposes. Consumption of fish that contain PCBs at the levels previously identified in 1998 poses a potential human health threat. It is reported that subsistence fishing does occur in these areas.

PCBs are readily absorbed into the body by all routes of exposure. They may persist in tissues for years after exposure stops. Long-term exposure to PCBs can affect the skin and liver. PCBs may impair the function of the immune system and at high levels have been shown to produce cancer and birth defects in laboratory animals. Although PCBs are suspected as a human carcinogen, they have a very low potential for producing acute toxic effects. PCBs bioaccumulate to concentrations that are toxic. A number of human studies indicate that PCBs can cross the placenta and locate in the fetus. PCBs also concentrate in human breast milk.

Hazardous substances or pollutants or contaminants are present in drums, barrels, tanks or other bulk storage containers that may pose a threat of release **(40 CFR §300.415(b)(2)(iii))**. As the river further erodes the portion of the Site adjacent to it, additional capacitors could potentially be released, or their contents released, into the Bound Brook and migrate further downstream.

High levels of hazardous substances or pollutants or contaminants in soils, largely at or near the surface, may migrate **(40 CFR §300.415(b)(2)(iv))**. Elevated levels of PCBs have been identified in the Bound Brook corridor, in particular Reaches 2 and 3. The contaminated soils associated with these capacitors in the Bound Brook corridor, adjacent to the Site, are readily available to migrate. During significant rain events, elevated flow rates and flash floods could potentially cause the PCB contamination to be spread downstream and into the floodplain.

Weather conditions exist that may cause hazardous substances to migrate or be released (**§300.415(b)(2)(v)**). Since stormwater runoff is a major source of flow in the Bound Brook Corridor, heavy or sustained rainfall events result in considerable water movement through the area. This facilitates the transport of PCB-contaminated soil and/or capacitors. Capacitors that are present at the surface on the southern end of the Site upstream of the twin culverts and/or potentially present in the banks of the Bound Brook near the Site downstream of the twin culverts, could be unearthed and migrate downstream. This disturbance and movement, depending on the manner in which it occurs, could potentially agitate capacitors present near the surface which have been degrading for nearly a half century and result in a release of PCBs directly into the Bound Brook or the floodplain adjacent to it.

There is an actual or potential exposure to nearby animals or the food chain from hazardous substances, pollutants or contaminants (**40 CFR §300.415(b)(2)(i)**). The Bound Brook and the adjoining water bodies are utilized as freshwater fisheries. CERCLA hazardous substances, including elevated levels of PCBs have been identified at the Site and in fish caught from the waters adjacent to and downstream of the Site. These substances could impact the fish and have the potential to enter the food chain and be consumed by persons fishing in the area of the Site and by wildlife.

Although the habitat value of the aquatic, wetland, and floodplain habitat immediately adjacent to the Site does not appear to be high, diverse and valuable habitat exist just upstream and downstream of the Site in the form of emergent wetland, floodplain, old field meadow, and undeveloped watershed in an otherwise heavily developed region. This physical arrangement could potentially have the affect of attracting ecological receptors into the areas of higher quality habitat, then exposing them to the contamination through either the use of the stream adjacent to the Site as a migration corridor or the transport of contaminants from adjacent to the Site to these other habitats.

Based on the available information, a CERCLA removal action is warranted at the Site to address the potential threats posed by the continued presence and release of capacitors containing elevated levels of PCBs in or near the Bound Brook corridor adjacent to the Site. Additional removal investigations are ongoing in the Bound Brook corridor, including an ecological evaluation to assess conditions and PCB levels in the stream. A Removal Site Evaluation (Phase II) will be prepared once the remaining field work is completed and all of the resultant data is evaluated.

cc: J. Rotola, ERRD-RAB
E. Wilson, ERRD-RAS
D. Harkay, ERRD-RAB
J. Kearns, ERRD-RAS
P. Mannino, ERRD-NJRB
S. Flanagan, ORC-NJSFB
G. Zachos, ERRD